

CHANGING AFLOAT C2

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28 JUN 05

End-to-end C2 Systems Changes

- **Bandwidth**-*Non-traditional approaches to afloat bandwidth access*
- **Data**- *Web Service Oriented architecture*
- **Hardware/software**- *Shared infrastructure afloat*
- **IM Policy, Tools and Processes**- *to support KM*

Improvements should be in parallel and coordinated using end-to-end systems approach...

Fleet Requires

- Fundamental afloat C2 architecture changes
 - **Single ship reach back should not be the driving model for connectivity in the architecture**
 - Increase asynchronous data replication afloat - **more receive-only delivery methods** and capacity to support web services
 - Standardization of data for improved compression, replication and synchronization, and security
 - Application of new technologies for information management and making sense of data/information (AI tools, content aggregators etc.)
 - **Must be open standards!** No stovepipes or vendor proprietary extensions to open standards.

Bandwidth/Connectivity

- Requested bandwidth/connectivity changes:
 - Alternatives to total dependence on space for high data rate:
 - Include “Hub and Spoke” model for SG C2
 - Organic SG assets to act as communications repeaters- *includes squadron of multi-mission UAVs on carrier and ships as repeaters*
 - Continue to pursue free space optics afloat for improved LOS intra-SG C2 – *not replacement for RF, another option*
 - Look at high altitude broadband airships as comm repeaters in high volume bandwidth areas (i.e., Arabian Gulf)
 - CSG/ESG control aggregate bandwidth, work with DISA to get approval for CSG/ESG controlled modems on units
 - Aggressively pursue increase in available asynchronous assets via joint community for standards based high data rate broadcast- ensure all ships equipped to receive
 - Continue to use systems with multi-use antennas and terminals
 - Development of CONOPS and OV architecture for balanced employment of all high data rate assets

New model desired...more high data rate transfer options

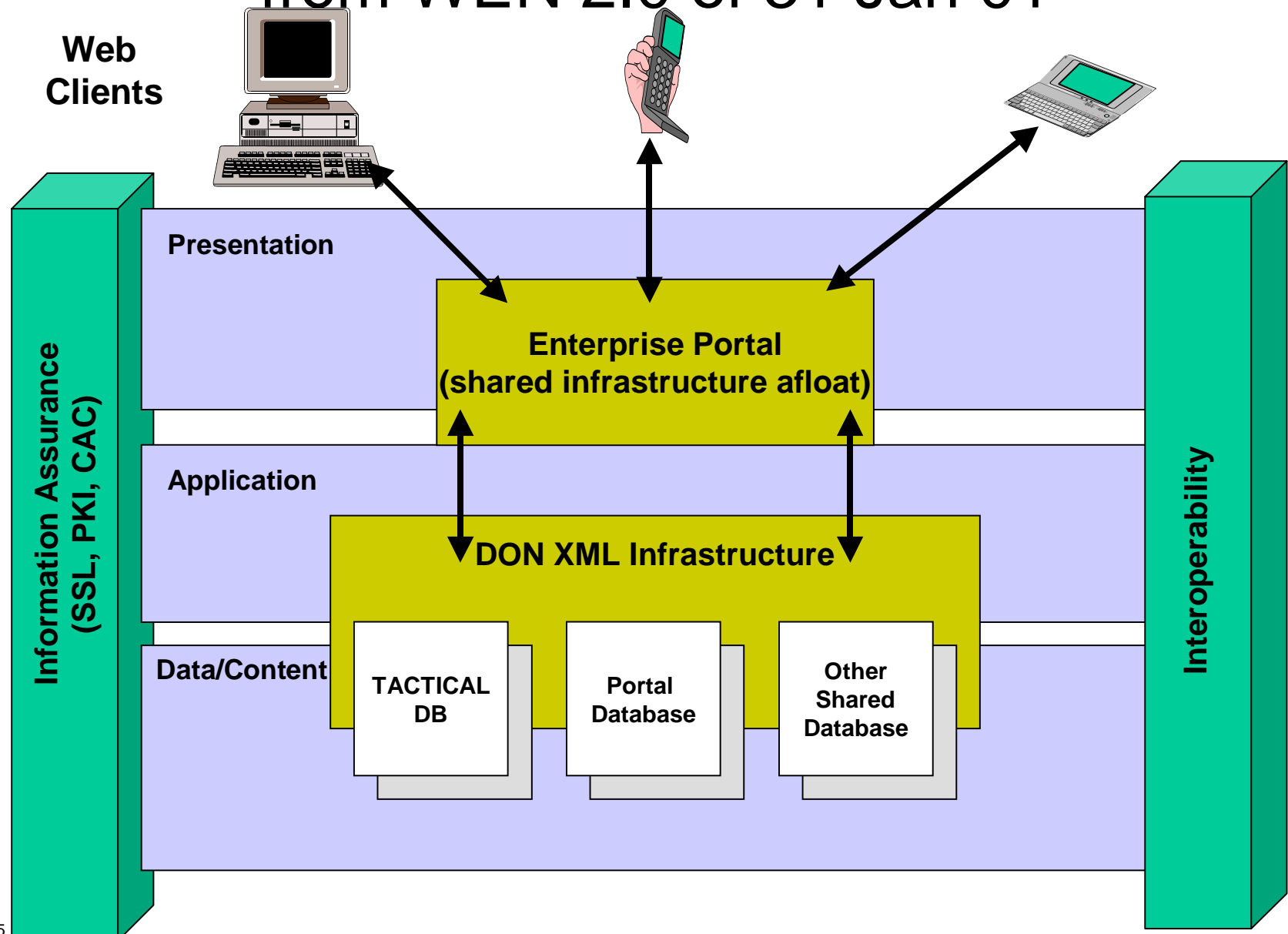
Data

- Continue work to ID authoritative dbs, delete duplication
- Require Open Standards for data and web services, use open source if possible
 - JSR 168 -Open Source Java Portlet Specification
 - WSRP- Web Services for Remote Portals
 - XMPP- Extensible Messaging Presence Protocol
 - XML- eXtensible Markup Language for data tagging
 - SOAP- Simple Object Access Protocol messaging protocol to move XML
 - WSDL- Web Service Description Language
 - UDDI- Universal Description Discovery Integration
- All databases web enabled & data in XML w/o vendor specific extensions
- Standardize & implement XML compression and prioritization- NPS work
- Engineer NOC staging area for forward/store data for replication to ships
- Implement open standards based web service architecture- use portal to access shared db afloat
- Continue working to harmonize four naval enclaves – remove seams!
Standardize enterprise services IAW NCES.

DON CIO has done good work here- need better enforcement.
Future funding for PEOs should be tied to compliance...

Envisioned Navy Web Services

from WEN 2.0 of 31 Jan 01



Shared Infrastructure

- All new development open standards web services vice client/server model
- Multi-use of application and db servers
 - Multi-way standards-compliant database replication that works in connected and disconnected modes
- Drop code not boxes!
 - Help reduce burden on ship power, AC, space, sysadmins etc.
- Avoid stovepipe science projects
- Multi-purpose open standards based cross-domain guards (i.e., XML data guard can do XML data, XML chat, and XHTML)

IM to Support KM

- Enforce use of open standards based collaborative tools (i.e., XMPP chat)
- IM tools that operate in bandwidth disadvantaged environment
- Implement AI tools, content aggregators, smart search and pattern recognition technology to help make sense of data and put it in context
- Properly tagged & formatted data facilitates:
 - MLS solution implementation and cross-domain transfer- Web services/apps must bind classification & release info to data elements
 - Role based access
 - Prioritization of information distribution
 - Info discovery based on the metadata

Questions?

